

WHAT IS CLAIMED IS:

1. An assembly for stacking and retaining a plurality of optical fibers with their ends aligned in a two dimensional array, the assembly comprising:

5 an aligned stack of a plurality of ferrule plates, each ferrule plate having a pair of parallel major surfaces forming first and second respective sides, the first side comprising a plurality of grooves for receiving optical fibers, and the second side comprising a substantially flat surface, wherein a plurality of the ferrule plates are stacked with the first side adjacent to the second side of the adjacent plate and the optical fibers are disposed in the grooves and between first and
10 second sides

2. The assembly of claim 1 wherein at least one pair of the ferrule plates are stacked with their grooved sides adjacent and aligned for enclosing optical fibers between successive aligned grooves.

15 3. The assembly of claim 1 wherein the grooves on each grooved side are parallel.

4. The assembly of claim 1 wherein each ferrule plate is substantially identical.

20 5. The assembly of claim 1 wherein each ferrule plate includes holes to facilitate alignment of successive plates.

6. The assembly of claim 1 wherein each ferrule plate includes holes and pins inserted in the holes to facilitate stack alignment.

7. The assembly of claim 1 wherein the fiber grooves are essentially V shaped grooves having a maximum dimension in excess of about .16 mm in depth.

5 8. An optical fiber termination block comprising an assembly according to claim 1.

9. An optical fiber connector comprising an assembly according to claim 1.

10 10. The optical fiber connector of claim 1, further comprising lateral grooves and mating pins, said mating pins disposed in the lateral grooves for mated connector alignment.

11. The assembly of claim 1 wherein the fiber ends are aligned in a plane forming an array with center to center end spacing of about 250 μm .

15 12. The assembly of claim 1 wherein the fiber ends are aligned in a two dimensional planar array with center-to-center end spacing of about 250 μm x 750 μm .

13. A method of making an assembly for stacking optical fibers with the fiber ends in an aligned two dimensional array comprising the steps of:

20 providing a plurality of ferrule plates, each plate having a pair of parallel major surfaces, one of the major surfaces having a plurality of grooves for receiving optical fibers and the other surface substantially flat;

stacking an array of optical fibers by disposing optical fibers in the grooves of a plurality of plates and covering the grooved surfaces with the flat surfaces of respective neighboring

plates;

bonding the plates and fibers in an aligned array; and,

forming from the array of fibers an aligned two dimensional array of fiber ends.

5 14. The method of claim 13 wherein providing the plurality of ferrule plates comprises molding the plurality of grooves onto one major surface of each plate.

10 15. The method of claim 14 wherein providing the plurality of ferrule plates comprises molding the plurality of grooves onto one major surface and molding the flat surface on the other major surface of each plate.

15 16. The method of claim 14 wherein the molding of the plurality of grooves comprises contacting the material to be molded in molding engagement with a molding surface to form the grooves and to form alignment features in registration with the grooves.

17. The method of making an assembly for stacking optical fibers with the fiber ends in an aligned two dimensional array further comprising:

20 molding at least two extended symmetrical plates, each having a pair of parallel major surfaces, one of the major surfaces having a plurality of grooves for receiving optical fibers and the other surface substantially flat, each symmetrical plate having a first relief marking and a second relief marking;

separating one of the extended symmetrical plates at the first relief marking, making a first type ferrule plate;

25 separating another extended symmetrical plate at the second relief marking, making a second type ferrule plate;

disposing the optical fibers in the grooves of one of the ferrule plates; and,
assembling the first type of ferrule plate and the second type of ferrule plate with their
grooved surfaces aligned.

5 18. The method of claim 17 wherein molding the symmetrical plate comprises molding
alignment features in registration with the grooves.

19. The method of claim 18 wherein the alignment features are holes.